

U.S. Serial No.: 10/791,323
Group Art Unit: 2836
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IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A device for preventing arcing between contacts of a switching device as the contacts of the switching device are opened, the switching device including a coil for controlling the opening of the contacts, the device comprising:

a coil suppression circuit connected in parallel with the coil, the coil suppression circuit dissipating the energy stored in the coil in response to the de-energizing of the coil and including:

 a first zener diode having a cathode operatively connected to the coil and an anode; and

 a second zener diode having a cathode operatively connected to the anode of the first zener diode and an anode;

 a driver having an input operatively connected to the anode of the first zener diode and an output; and

 a first solid state switch having a gate operatively connected to the output of the driver and being connected in parallel with the contacts, the first solid state switch movable between an open position preventing the flow of current therethrough and a closed;
wherein:

the first zener diode providing a reference voltage generated by the de-energization of the coil; and

 the driver closes the first solid state switch in response to the [a] reference voltage across the first zener diode.

Claims 2-3 (Cancelled).

4. (Original) The device of claim 3 wherein the driver includes a timing device for closing the first solid state switch for a predetermined time period.

Claims 5-6 (Cancelled).

7. (Previously Presented) The device of claim 1 wherein the driver includes a transformer, the transformer having a primary side operatively connected to the coil suppression circuit and a secondary side interconnected to the gate of the first solid state switch, the transformer transferring electrical energy from the coil suppression circuit to the gate of the first solid state switch.

8. (Original) The device of claim 7 further comprising a zener diode connected in parallel with the secondary side of the transformer.

9. (Original) The device of claim 7 wherein the transformer has a turn ratio of 1:1.

10. (Original) The device of claim 1 comprising a second solid state switch connected in series with the first solid state switch.

11. (Original) The device of claim 10 further comprising:
a first diode connected in parallel with the first solid state switch, the first diode biased in a first direction; and
a second diode connected in parallel with the second solid state switch, the second diode biased in a second direction.

12. (Currently Amended) A bypass circuit for preventing arcing of electrical energy passing between first and second contacts of a switching device having a coil wherein the contacts open and close in response to the energization of the coil, the bypass circuit comprising:

a first switch connected in parallel with the contacts of the switching device, the first switch movable between a closed position with the contacts open and an open position with the contacts closed;

a voltage reference device [operatively] connected to the coil, the voltage reference device providing [generating] a reference voltage generated by [in response to] de-energization of the coil; and

an actuation circuit interconnecting the coil and the first switch, the actuation circuit closing the first switch in response to the reference voltage.

Claims 13-14 (Cancelled).

15. (Previously Presented) The bypass circuit of claim 12 wherein the actuation circuit includes a transformer, the transformer having a primary side operatively connected to the voltage reference device and a secondary side operatively connected to the first switch.

16. (Original) The bypass circuit of claim 12 wherein the electrical energy passing between the contacts has an AC waveform and wherein the bypass circuit further comprises a second switch operatively connected to the actuation circuit and being connected in parallel with the contacts of the switching device, the second switch movable between a closed position with the contacts open and an open position with the contacts closed.

17. (Original) The bypass circuit of claim 12 further comprising a second switch operating connected to the first switch, the second switch controlling the rate of closure of the first switch.

18. (Currently Amended) A bypass circuit for preventing arcing of electrical energy passing between first and second contacts of a switching device having a coil wherein the contacts open and close in response to the energization of the coil, the bypass circuit comprising:

a first switch connected in parallel with the contacts of the switching device, the first switch movable between an open position and a closed position;

an energy dissipation device operatively connected to the coil for providing [generating] a reference voltage for a predetermined time period generated by de-energization of [as] the coil [is de-energized]; and

a driver interconnecting the energy dissipation device and the first switch, the driver closing the first switch prior to the opening of the contacts in response to the reference voltage.

19. (Original) The bypass circuit of claim 18 wherein the driver is a transformer, the transformer having a primary side operatively connected to the energy dissipation device and a secondary side operatively connected to the first switch.

20. (Original) The bypass circuit of claim 19 further comprising a varistor connected in parallel with the contacts of the magnetic switching device.

21. (Original) The bypass circuit of claim 18 wherein the electrical energy passing between the contacts has an AC waveform and wherein the bypass circuit further comprises a second switch operatively connected to the driver and being connected in parallel with the contacts of the switching device, the second switch movable between an open position and a closed position.

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22. (Previously Presented) The bypass circuit of claim 21 wherein the driver closes the second switch prior to the opening of the contacts in response to the reference voltage.